Amebic Abscess of the Liver

EDGAR E. STRUVE, M.D., *Fullerton*

SUMMARY

In a review of the records in 50 cases of amebic abscess of the liver observed in the Canal Zone between 1920 and 1945 the following features were noted:

Incidence was preponderantly in males and highest in persons between the ages of 20 and 40. None of the patients was under 21 years of age.

There was a great variety of complaints at the time of admission to hospital. The most common was pain in the right upper quadrant of the abdomen.

Demonstration of either elevated or fixed diaphragm by x-ray film and fluoroscopic examination was useful in diagnosis in a number of cases, but absence of such findings did not rule out abscess of the liver.

In some cases there was history of previous dysentery with blood in the stools.

One or another of three operative procedures was used for drainage of abscesses in 39 patients. Of the 39, six died; in five of the six, multiple abscesses were present.

Emetine hydrochloride was given to all patients.

THE following is a study and analysis of 50 cases of amebic abscess of the liver in patients that were admitted to Gorgas Hospital, Ancon, Canal Zone, between the years 1920 and 1945. There are added in this article two illustrative case histories of patients treated by the author in 1947 and 1948 in northern Peru, South America.

After 1919 there was a sharp drop in the incidence of this disease in the Canal Zone, which is attributable to improvement of general sanitation measures and also to the use of the better methods of treating the cases of amebic dysentery, which reduced the hazard of amebic abscess. In the days of construction of the Panama Canal, the Japanese truck gardeners used human excreta for fertilizer. This was eventually forbidden, which probably accounts for a part of the decrease in incidence after 1919. The use of emetine hydrochloride was instituted at Gorgas Hospital at about this time. This also caused reduction in incidence of amebic abscess of the liver.

In the list of 50 cases occurring between 1920 and 1945, amebic abscess of the liver was diagnosed clinically in eight patients. Diagnostic aspiration was done in all eight cases but abscess was not demonstrated in any of them. The eight patients were treated with emetine and all of them responded satisfactorily.

This study is based primarily on the cases that appeared between 1920 and 1945, not inclusive of the eight in which the clinical diagnosis was amebic abscess of the liver.

The incidence was highest in persons between the ages of 20 and 40. There were no cases in persons under 21 years of age.

Although the disease was observed in patients of various nationality and racial background, in each case it occurred in an individual who had spent several years in a locality where there was a high incidence of amebiasis.

The distribution by sex was rather striking, in that in only one of the 42 cases was the patient a woman.

On admission to the hospital the patients had a great variety of complaints. The most constant chief complaint was pain in the right upper quadrant of the abdomen. A list of the complaints and the number of patients complaining of each follows:

Pain in right upper quadrant of abdomen	18
Generalized abdominal pain	9
Pressure pain in right chest	4
Fever	4
Bloody dysentery	3
Pain in left shoulder and epigastrium	2
Pain in right side of back	1

Several patients had symptoms and clinical findings of a very obscure nature at the time of admission, and abscesses were not demonstrated in them, or did not develop, until four to six weeks later. For example, one patient had symptoms typical of acute appendicitis. Appendectomy was performed immediately and the appendix was found to be normal. Two weeks later symptoms of abscess of the liver developed. Exploratory aspiration was performed and the abscess was drained. This patient was discharged as cured after 95 days in the hospital. Another patient was admitted with a complaint of fever and chills. On admission he was found to have tertian malaria and was treated accordingly. A few days later symptoms of pathologic change in the right upper quadrant of the abdomen were noted. Upon fluoroscopic examination of the chest it was noted that there was no movement of the right diaphragm, but it was not elevated. Exploratory aspiration was performed, an amebic abscess was found and drained, and the patient recovered.

Other significant complaints and the number of cases in which they were noted were: Diarrhea, 6; nausea and vomiting, 9; fever, 17; malaise, 1; indigestion, 1; chills, 5; anorexia, 6; night sweats, 1; cough, 1; headache, 1.

Physical findings in the large majority of cases were such as to localize the pathologic changes in the region of the liver. The findings and the number of cases in which they were noted: Tenderness and

rigidity in right upper quadrant, 24; enlarged liver, 17; abdominal distention, 3; generalized abdominal tenderness and rigidity, 5; elevated diaphragm, right, 1. In four cases there were no abnormalities noted upon physical examination at the time of admission.

A very helpful physical sign was the reaction to single finger percussion over the liver area of the chest and abdomen when abscess was suspected. At the point of maximum tenderness a needle was introduced for aspiration to establish the diagnosis.

A very useful procedure, at times, as an aid in diagnosis of this disease was the use of the x-ray film and fluoroscopic examination of the chest. In 11 cases either elevated or fixed diaphragm was noted upon x-ray examination. Demonstration of either of these conditions is highly indicative of subdiaphragmatic disease. However, absence of these findings does not rule out liver abscess, because they occur only in the early stage of the disease and only if the abscess is situated in the upper portion of the right lobe of the liver. If the abscess is located either in the left lobe or in the lower portion of the right lobe, the usual clinical finding will be enlargement and tenderness of the liver; and if the condition is allowed to go untreated, the inflammation will manifest itself in the upper regions of the abdominal wall.

In 11 cases there was history of previous dysentery with blood in the stool; in 31 cases there was no such history. In that total of 42 cases, there were ten in which amebae were found in the stool, and 31 in which amebae were not found. Other laboratory findings were not significant. Leukocytes in the blood at the most acute stage of the disease numbered from 6,000 to 30,000. Results of examination of the urine were of no particular aid in the diagnosis. The icteric index was elevated in only about one-fourth of the cases; the highest was 26 units.

One or another of three surgical procedures was followed in the treatment of most of the patients: (1) laparohepatotomy—extraperitoneal drainage of the abscess of either right or left lobe (17 patients); (2) thoracohepatotomy—extrapleural drainage with rib resection at the appropriate site (15 patients); (3) transthoracic hepatotomy—two-stage thoracohepatotomy (transdiaphragmatic) when the abscess was high in the dome of the right diaphragm (seven patients). Three patients were not operated upon.

Operative procedure to drain the abscess was carried out in 39 of the 42 cases in which a diagnosis of amebic abscess of the liver was established by operation or by autopsy. Six of the 39 patients (15.2 per cent) died, and five of the six were found at autopsy to have multiple abscesses. In the sixth case autopsy was not done. There were, then, 34 patients with single abscess of the liver who were operated upon, and in this group there was one death (2.9 per cent). Two of the six patients who died had been operated upon a second time when evidence of the presence of another abscess developed. In one of these two cases there was no other abscess found at autopsy, but there was extensive destruction of the liver. In the other case, many small abscesses in both lobes of the liver were noted at autopsy. A course of emetine hydrochloride was given to all patients. The usual course consisted of 0.3 gm. given subcutaneously twice a day for ten days.

Thirty of the patients had a single abscess in the right lobe of the liver, six had multiple abscesses, and six had a single abscess in the left lobe.

Cases of multiple abscess were extremely difficult to manage. In most cases not all of the abscesses could be drained. In cases of multiple abscess, the lesions were of various sizes and distribution. One patient had numerous abscesses in both lobes. Another had multiple abscesses in both lobes, one of which had been drained surgically; at autopsy another abscess 18 cm. in diameter was found which had not been drained. The third patient had 15 abscesses distributed through both lobes. The fourth had two large abscesses in the right lobe; one was drained and one was not. The fifth patient had hundreds of small and minute abscesses scattered throughout both lobes of the liver, and the sixth had two large abscesses in the right lobe.

All of the patients who were known to have multiple abscesses died. There were no deaths in the group of patients who had single abscess of the left lobe of the liver. There were three deaths among those who were considered to have a single abscess of the right lobe. In two of the latter cases autopsy was not done and there may have been more than one abscess, while in the remaining case of the three there was only one abscess but the patient was not operated upon. In this case the lesion was diagnosed roentgenologically with barium enema as an inoperable carcinoma of the transverse colon with hepatic metastases.

In all seven of the cases in which autopsy was done the presence of amebae in the wall of the abscess was noted.

Three of the patients in this series had associated ulcerative amebic colitis. They died.

The average hospital stay of those that recovered was 40 days. The shortest stay was 21 days and the longest 95 days.

In only two (5 per cent) of the cases in this study were there any of the usual serious complications of this disease. In one case, which terminated in death, one of the several abscesses of the liver ruptured into the peritoneal cavity just before operation. In the other case there was amebic pleural empyema in the right chest. The abscess had extended through the right diaphragm and the patient recovered following surgical drainage.

Two patients with amebic abscess of the liver were observed in Peru.

CASE REPORTS

CASE 1: The patient, a 46-year-old Peruvian farmer, was admitted to the hospital with complaint of constant, dull aching in the right upper quadrant which had been present for one week. This pain, during the last two days, had become somewhat more severe and the patient had been unable to continue working. Mild anorexia was associated with the pain.

The temperature was 100.5°F. The patient complained of

some soreness in the right shoulder. On deep inspiration there was a mild aggravation of pain in right side of the chest. Two weeks before admission and for a period of several days there had been a moderate attack of dysentery with blood in the stools. This condition subsided after a few days without treatment.

The patient was well developed and well nourished. Tenderness was noted on deep palpation in the right upper quadrant. Fist percussion over the lower right thorax produced sharp stabbing pain.

No abnormalities were noted in examination of the blood and urine. X-ray and fluoroscopic examinations of the chest were negative for pathologic change. A gallbladder examination by x-ray showed normal filling and emptying. The icteric index was 12 units. Repeated (five) stool examinations were negative for amebae.

During the first two days of hospitalization the pain became more intense with a continued elevation of temperature. Exploratory operation, with the possibility of amebic abscess of the liver considered, was done five days after admission. A transverse incision was made in the right upper abdomen. There was a soft, fluctuant area about 3 inches in diameter on the lateral aspect of the right lobe of the liver. About 35 cc. of thin, cloudy, reddish-brown fluid was aspirated from this area. Emetine solution, 0.6 gm. in 10 cc. of water, was reinjected into the cavity. A soft rubber tissue drain was placed between the right lobe of the liver and the abdominal wall and the incision was closed. The postoperative condition of the patient was considered good.

Emetine, 0.3 gm. twice daily, was given for the subsequent ten days. The drains were removed on the seventh day after operation, and the wound sutures were removed on the eighth postoperative day. The temperature and pain gradually subsided. On the tenth day the patient was out of bed and afterward made rapid improvement.

CASE 2: The patient, a Peruvian woman, 27 years of age, stated that three weeks previously she had had an attack of dysentery with blood in the stools which lasted for several days. Fever, nausea and pain in right upper quadrant developed at that time. The patient stated that she had been able to eat very little during the preceding three weeks and had lost a great deal of weight. During that time there had been occasional mild attacks of diarrhea without blood in the stool. Soon after the appearance of the pain in the right upper quadrant, the patient noticed swelling in the area, which had gradually become larger and more prominent.

Upon physical examination the patient was observed to be emaciated and apparently very ill. The skin was dry and the sclerae and skin were mildly icteric. The right diaphragm was elevated one interspace above the usual level. There was a bulging, soft mass in the right upper quadrant of the abdomen. In the center of this mass was an area about 2 inches in diameter over which the skin was thin and glistening as if an abscess were about to burst through.

The hemoglobin value in the blood was 42 per cent; erythrocytes numbered 2,225,000 and leukocytes 8,600. The icteric index was 21 units. Slightly elevated content of urobilinogen in the urine was noted. An x-ray film showed high elevation of the right diaphragm.

Supportive therapy, including intravenous administration of fluid and whole blood, was started immediately. At operation the following day brown-colored pus was encountered immediately under the skin. Suction drainage was used to evacuate the cavity, which was estimated to be 20 cm. in diameter in the greatest dimension. It was evident at that time that there was a great deal of destruction of the liver.

The patient was given emetine subcutaneously, 0.3 gm. twice a day for ten days, and supportive therapy was continued. During the first week after operation there was moderate improvement in that the patient regained some desire to eat and said that she felt somewhat better. The temperature dropped and for a few days remained at 99.6 degrees. It rose gradually during the next two days and an x-ray film of the chest made at that time showed there had been further elevation of the diaphragm. The eighth rib was resected to reach and drain a second abscess. There was only slight improvement following this procedure and even though blood transfusions, emetine and antibiotics were used the patient gradually became weaker and died four weeks after admission.

DISCUSSION

The prognosis for patients with a single amebic abscess of the liver is excellent and the number cured should approach 100 per cent in any series. In the presence of multiple abscess the mortality rate increases. Craig[1] in 1934 considered the prognosis grave in this disease and expected an over-all mortality rate of 25 to 30 per cent when all cases, both single and multiple abscesses, were included.

The mortality rate also will be affected by the general physical condition of the patient when first observed, by how early proper treatment is begun, and by the extent of damage to the liver.

Ochsner and DeBakey[3] in 1935 reported an overall mortality rate of only 4.1 per cent in their series. This greatly influenced the change from open surgical drainage to that of repeated aspiration of the abscess cavity and subcutaneous injection of emetine hydrochloride. However, not all cases can be handled by this comparatively simple procedure. Manson-Bahr in 1945 reported that open surgical drainage was necessary in about 25 per cent of cases observed by him.

The use of open surgical procedure should be considered when: (1) it is demonstrated that an abscess has become secondarily infected; (2) it is considered inadvisable to pass an exploratory needle through an uncontaminated body cavity or into a dangerous area; (3) an abscess "points" in the epigastrium, that is, is situated in the left lobe of the liver; (4) an abscess has not responded to the aspiration method; (5) no pus is obtained after repeated aspirations although indications of the presence of pus are strong.

Open surgical drainage with emetine injected subcutaneously was the method used by the author because it had apparently been producing satisfactory results.

It is recommended, however, that the treatment as outlined by Ochsner and DeBakey[3] of repeated aspiration of the abscess and subcutaneous injections of emetine be considered the method of choice in cases of amebic abscess of the liver and that the open surgical drainage procedures be used only as indicated in the preceding paragraph.

304 Chapman Building.

REFERENCES

1. Craig, C. F.: Amebiasis and Amebic Dysentery, Springfield, Thomas, 1934.

2. Manson-Bahr, P. H.: Manson's Tropical Diseases, 12th Edition, 1945, Williams and Wilkins Co., Baltimore, pp. 518-519.

3. Ochsner & DeBakey: Liver abscess, Am. J. of Surg., 29:173, 1935.